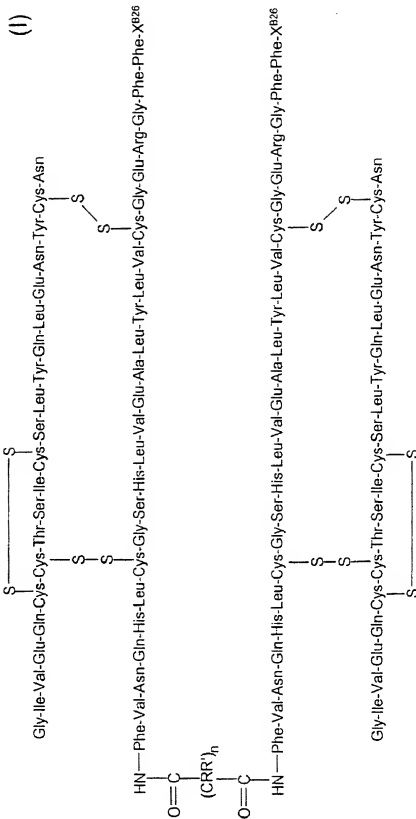


Patent claims:

1. An insulin analogue consisting of two identical or different insulin monomers covalently linked together via a bridge, where the insulin monomers are selected from a group comprising human insulin, animal insulins and derivatives of human insulin and animal insulins, and where at least one derivative of human insulin or of an animal insulin is present in an insulin analogue; and physiologically acceptable salts thereof.
2. An insulin analogue as claimed in claim 1, characterized by formula I.

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where

X is, independently of one another, a branched or unbranched C₁-C₁₀-alkyl group, mono- or polysubstituted aryl group, C₁-C₁₀-alkyl group, mono- or polysubstituted or unsubstituted O-aryl group, an amino acid or a derivative thereof, or a group of the formula NRR';

R,R' is H, NH₂, a branched or unbranched C₁-C₁₀-alkyl radical or mono- or polysubstituted or unsubstituted aryl group;

n is 0, 1, 2,16.

3. An insulin analogue as claimed in claim 2, where X is an amino acid in which the carboxylic acid group is amidated.
4. An insulin analogue as claimed in claim 3, where X is the amino acid sarcosine.
5. An insulin analogue as claimed in one or more of claims 2 or 3, where the X residues in the two B chains are different from one another.
6. An insulin analogue as claimed in one or more of claims 2 or 3, where X is an amino group.
7. B1,B1-Sub-[Sar^{B26}]-des-(B27-B30)-insulin-B26-amide insulin dimer.
8. B1,B1-Sub-[D-Ala^{B26}]-des-(B27-B30)-insulin-B26-amide insulin dimer.
9. B1,B1-Sub-[Glu^{B26}]-des-(B27-B30)-insulin-B26-amide insulin dimer.
10. A pharmaceutical preparation which comprises an insulin analogue as claimed in one or more of claims 1-9 and additions selected from the group comprising zinc salts, phenol, m-cresol, glycerol and buffer substances.
11. A process for producing a pharmaceutical for the treatment of

diabetes comprising an insulin analogue as claimed in one or more of claims 1-9.

5 12. An insulin analogue as claimed in one or more of claims 1-9 for use as pharmaceutical.

13. A diagnostic kit comprising one or more insulin analogues as claimed in one or more of claims 1-9.

10 14. A process for preparing the insulin analogues as claimed in one or more of claims 1-9, where

- (a) the monomeric insulin analogues are obtained by enzyme-catalyzed semisynthesis or by methods of genetic manipulation,
- 15 (b) the monomeric insulin analogues from step (a) are optionally partially protected by protective groups;
- (c) the protected monomeric insulin analogues from step (b) and/or the monomeric insulin analogues from step (a) are reacted with a preactivated dicarboxylic acid, and
- 20 (d) the insulin analogues obtained in step (c) are isolated from the reaction mixture.